Work Order ID 55134

January 6, 2010 3:55:30 PM

Item ID: D407-667-105 **Accept**

Setup Start

Stop

Revision ID:

Item Name: Crosstube Fwd

Start Date: 07/01/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 28/01/2010 **Req'd Qty:** 1.00 **Customer:**

Reference:

Run Start

Stop

Approvals: **Process Plan:** [signature] **Date:** 01-07 **Tooling:** ______ **Date:** ______

QC: ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp

Draw Nbr	Revision Nbr
D407-667-145	Rev C

100
DC
Document Control

DOCUMENT CONTROL — 0.00

Memo — 0.00

Photocopy bluefile and create labels as per PPP D407-667-105 CHG003 — S 10/02/5

MF 10/02/25

110
Packaging
Packaging

Packaging — 0.00

Memo — 0.00

(1X) MB 10-02-04

120
CNC Bend 2
CNC Alpha 160 Bender

BENDING MACHINE - CROSSTUBES — 0.00

Memo — 0.00

Bend tube as per Dwg D407-667-145 using CNC bender program 407-fw and Folio FT016

(1X) MB 10-02-08

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ______ **PAR #:** ______ **Fault Category:** ______ **NCR:** Yes No **DQA:** ______ **Date:** ______

Resolution: ______ **Disposition:** ______ **QA: N/C Closed:** ______ **Date:** ______

NCR:	WORK ORDER NON-CONFORMANCE (NCR)								
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE

Work Order ID 55134

January 6, 2010 3:55:31 PM

Item ID: D407-667-105 **Accept** **Setup** **Start** / **Stop**

Revision ID:

Item Name: Crosstube Fwd

Start Date: 07/01/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 28/01/2010 **Req'd Qty:** 1.00 **Customer:**

Reference:

Run **Start** / **Stop**

Approvals: **Process Plan:** ________ **Date:** ________ **Tooling:** ________ **Date:** ________

QC: ________ **Date:** ________ **SPC (Y/N):** ________ **Date:** ________

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 QC Quality Control	QC15- Crosstube Dimensional Check **Memo**	0.00 0.00 => δ 10/02/05							
140 Crosstubes Crosstubes	Crosstubes **Memo** 1- scrib batch # inside of cuff□2-Drill pilot holes in tube using drill Jig DT8541 & DT8542 as per Dwg D407-667-145. Drill all (3) top holes. □3-Drill and Ream all holes in tube to finish size using drill Jig DT8541 & DT8542 as per Dwg D407-667-145 Check	0.00 0.00				(1)	0		MB 10-02-10
150 HandFXtube Hand Finishing Crosstubes	Crosstubes Chemical Conversion **Memo**	0.00 0.00				1	-	-	AWM 10-2-10

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE

Work Order ID 55134

January 6, 2010 3:55:31 PM

Item ID: D407-667-105 **Accept** **Setup** **Start** **Stop**

Revision ID:

Item Name: Crosstube Fwd

Start Date: 07/01/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 28/01/2010 **Reqd Qty:** 1.00 **Customer:**

Reference:

Run **Start** **Stop**

Approvals: **Process Plan:** ______ **Date:** ______ **Tooling:** ______ **Date:** ______

QC: ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 QC Quality Control	QC3- Inspect Part Finish Memo	0.00 0.00 Sidely							
170 QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.00 Sidely							
180 Outsource2 Outsource process - NDT	Outsource process - NDT per QSI038 4.1 Memo Liquid Penetrant Inspection as per QSI 038 Or Issue P/O 1364 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order	0.00 0.00				AY10-2-14			

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: __________ PAR #: ______ Fault Category: __________ NCR: Yes No DQA: _____ Date: ________

Resolution: __________ Disposition: __________ QA: N/C Closed: ________ Date: ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE

Work Order ID 55134

January 6, 2010 3:55:31 PM

Item ID: D407-667-105

Accept

Setup **Start** / **Stop**

Revision ID:

Item Name: Crosstube Fwd

Start Date: 07/01/2010 **Start Qty:** 1.00

Cust Item ID:

Required Date: 28/01/2010 **Req'd Qty:** 1.00

Customer:

Reference:

Run **Start** / **Stop**

Approvals: **Process Plan:** ____ **Date:** ____ **Tooling:** ____ **Date:** ____

QC: ____ **Date:** ____ **SPC (Y/N):** ____ **Date:** ____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190 Packaging Packaging	Packaging **Memo** Inspect for transit damage Ensure copy of NDT results attached to work order.	0.00 0.00							
200 QC Quality Control	~~QC6~~ QC5 Inspect dimensions to drawing **Memo** Inspect for damage & ensure results are as per Dwg D206-667-145	0.00 0.00							
210 SprayPaint Spray Painting	SprayPaint **Memo** 1-Prime inside and outside crosstube as per QSI 005 4.2 2-Paint outside crosstube with White Imron as per QSI 005 4.2 PRIME: Start Time: 8:00 Fininsh Time: 9:00 PAINT: Start Time: 1:00 Finish Time: 2:00	0.00 0.00							

Handwritten sign-offs: 190 — signature, 1; 200 — signature 10 02 17 (1); 210 — signature 10 02 18 (1)

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ PAR #: _______ Fault Category: __________________ NCR: Yes No DQA: _____ Date: _________

Resolution: ____________________ Disposition: ____________________ QA: N/C Closed: __________ Date: _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 55134

January 6, 2010 3:55:31 PM

Item ID: D407-667-105 **Accept**

Setup Start

Stop

Revision ID:

Item Name: Crosstube Fwd

Start Date: 07/01/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 28/01/2010 **Req'd Qty:** 1.00 **Customer:**

Reference:

Run Start

Stop

Approvals: **Process Plan:** ____________ **Date:** ________ **Tooling:** ____________ **Date:** ________

QC: ____________ **Date:** ________ **SPC (Y/N):** ____________ **Date:** ________

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220 QC Quality Control	QC14- Inspect Spray Paint	0.00							
	Memo Then,Wrap in plastic bag to protect from scratches	0.00				ZT 10-02-22			
230 Crosstubes Crosstubes	Crosstubes	0.00							
	Memo 1-Install support using 0.03" to 0.06" thick layer of magnobond 6398 per QSI 015. Let cure for 12h after installation and prior to packaging. Note (3) top holes should be facing up.□A/R Magnobond 6398 : 112417 exp. 01/2011 Torque clamps to 80-100 in lb□3 → MM 10/02/24	0.00				MM 10 02 23 ①			
240 QC Quality Control	QC5- Inspect part completeness to step on W/O	0.00							
	Memo	0.00 S 10/02/25				(stamp)			

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ **PAR #:** ________ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
			Corrective Action Section B					
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE

Work Order ID 55134

January 6, 2010 3:55:31 PM

Item ID: D407-667-105 **Accept** **Setup** **Start** **Stop**

Revision ID:

Item Name: Crosstube Fwd

Start Date: 07/01/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 28/01/2010 **Req'd Qty:** 1.00 **Customer:**

Reference:

Run **Start** **Stop**

Approvals: **Process Plan:** ____________ **Date:** ________ **Tooling:** ________ **Date:** ________

QC: ____________ **Date:** ________ **SPC (Y/N):** ________ **Date:** ________

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
250 Packaging Packaging	Pick Kit Memo	0.00 0.00				10-2-25			
260 QC Quality Control	QC4- 100% Inspect kits for completeness Memo	0.00 0.00							
270 Packaging Packaging	Packaging Memo Identify and pack for shipping as per PPP D407-667-105☐Location:__________ ☐PPP Rev:________	0.00 0.00				10-2-26			

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 55134

January 6, 2010 3:55:31 PM

Item ID: D407-667-105 **Accept**

Setup **Start** **Stop**

Revision ID:

Item Name: Crosstube Fwd

Start Date: 07/01/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 28/01/2010 **Req'd Qty:** 1.00 **Customer:**

Reference:

Run **Start** **Stop**

Approvals: **Process Plan:** ____________ **Date:** ________ **Tooling:** ____________ **Date:** ________

QC: ____________ **Date:** ________ **SPC (Y/N):** ____________ **Date:** ________

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
280	QC21- Final Inspection - Work Order Release	0.00						10/03/02	
QC	Memo	0.00							
Quality Control									

BL 10-2-24

(1)

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ PAR #: ________ Fault Category: ____________ NCR: Yes No DQA: ______ Date: ________

Resolution: ____________ Disposition: ____________ QA: N/C Closed: ________ Date: ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE

Picklist Print

January 6, 2010 3:55:37 PM

Work Order ID: 55134

Parent Item: D407-667-105

Parent Item Name: Crosstube Fwd

Start Date: 07/01/2010 **Required Date:** 28/01/2010

Start Qty: 1.00 **Required Qty:** 1.00

Comments:

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
AN960JD516 Washer		Purchased	No			100	Each	589.0000	18.0000		10-2-25	
D2873-043 Nut Plate Assembly		Manufactured	No			230	Each	49.0000	2.0000		10 02 24	

AN960JD516 warehouse locations:

Warehouse Location	Loc Qty	Loc Code
Main Warehouse		
ST	589	
110363	46	
110523	57	
111279	39	
112082	64	
112314	14	
112828	18	
113149	351	

8 NAS1149D0563J Q31 017 50 M113524

D2873-043 warehouse locations:

Warehouse Location	Loc Qty	Loc Code
Main Warehouse		
ST	49	
45370	2	
45422	1	
50002	6	
50871	20	
53966	20	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ PAR #: _______ Fault Category: __________________ NCR: Yes No DQA: _____ Date: _________

Resolution: ____________________ Disposition: ____________________ QA: N/C Closed: __________ Date: _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE

Picklist Print

January 6, 2010 3:55:37 PM

Work Order ID: 55134

Parent Item: D407-667-105

Parent Item Name: Crosstube Fwd

Start Date: 07/01/2010 **Required Date:** 28/01/2010

Start Qty: 1.00 **Required Qty:** 1.00

Comments:

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D2873-045 Nut Plate Assembly		Manufactured	No			230	Each	67.0000	2.0000			

Warehouse Location	Loc Qty	Loc Code
Main Warehouse		
ST	67	
45210	3	
50001	24	
53967	20	
53968	20	

M 10 02 24

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D2891-1 2.25 Support		Manufactured	No			230	Each	67.0000	2.0000			

Warehouse Location	Loc Qty	Loc Code
Main Warehouse		
ST	67	
40336	1	
43880	18	
46159	20	
50952	20	
53347	8	

M 10 02 23

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ PAR #: _______ Fault Category: __________________ NCR: Yes No DQA: _____ Date: _________

Resolution: ____________________ Disposition: ____________________ QA: N/C Closed: __________ Date: _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

January 6, 2010 3:55:37 PM

Work Order ID: 55134

Parent Item: D407-667-105

Parent Item Name: Crosstube Fwd

Start Date: 07/01/2010 **Required Date:** 28/01/2010

Start Qty: 1.00 **Required Qty:** 1.00

Comments:

Component Item / Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D407-667-105TRN Crosstube Turning Detail		Manufactured	No			230	Each	2.0000	1.0000	MB	10-02-04	

Warehouse Location	Loc Qty	Loc Code
Main Warehouse		
LG	2	
53387	1	
53388	1	1X

Component Item / Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
MS21920-20 Clamp (per MIL-DTL-8783C)		Purchased	No			230	Each	115.3000	4.0000			

Warehouse Location	Loc Qty	Loc Code
Main Warehouse		
ST	115.3	
103478	2	
106484	12	
109269	9.3	
110536	10	
112307	32	
112624	39	
112793	11	

NM 10 02 23

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE

Work Order ID: 55134

Parent Item: D407-667-105

Parent Item Name: Crosstube Fwd

Start Date: 07/01/2010 **Required Date:** 28/01/2010

Start Qty: 1.00 **Required Qty:** 1.00

Comments:

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
AN5-10A Bolt		Purchased	No			260	Each	208.0000	10.0000			

Warehouse Location	Loc Qty	Loc Code
Main Warehouse		
ST	208	
107013	8	
110363	2	
112314	1	
112933	14	
113149	50	
113255	33	
113524	100	

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
AN5-30A BOLT		Purchased	No			260	Each	71.0000	4.0000			

Warehouse Location	Loc Qty	Loc Code
Main Warehouse		
ST	71	
110467	21	
112933	50	

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ PAR #: _______ Fault Category: __________________ NCR: Yes No DQA: _____ Date: _________

Resolution: ____________________ Disposition: ____________________ QA: N/C Closed: __________ Date: _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

January 6, 2010 3:55:38 PM

Work Order ID: 55134

Parent Item: D407-667-105

Parent Item Name: Crosstube Fwd

Start Date: 07/01/2010 **Required Date:** 28/01/2010

Start Qty: 1.00 **Required Qty:** 1.00

Comments:

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
AN5-32A Bolt		Purchased	No			260	Each	179.0000	4.0000	10-2-24		
MS20601-AD4W10 RIVET		Purchased	No			260	Each	173.0000	14.0000			

AN5-32A:

Warehouse Location	Loc Qty	Loc Code
Main Warehouse		
ST	179	
106242	3	
106519	4	
110363	17	
112805	5	
112933	50	4
113121	100	

MS20601-AD4W10:

Warehouse Location	Loc Qty	Loc Code
Main Warehouse		
ST	173	
110665	30	
111177	43	
113220	100	

10 02 24

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** ____ **Date:** ______

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ______ **Date:** ______

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

January 6, 2010 3:55:38 PM

Work Order ID: 55134

Parent Item: D407-667-105

Parent Item Name: Crosstube Fwd

Start Date: 07/01/2010 **Required Date:** 28/01/2010

Start Qty: 1.00 **Required Qty:** 1.00

Comments:

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty to Pick	Qty Issued	Date Issued	Status
MS21042L5 Nut		Purchased	No			260	Each	1,005.000	4.0000	10-2-2000		

S

Warehouse Location	Loc Qty	Loc Code	
Main Warehouse			
ST	1005		
110382	10		
111636	11		
112314	484		
113523	300		4
113537	200		

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ PAR #: _______ Fault Category: _________________ NCR: Yes No DQA: _____ Date: _________

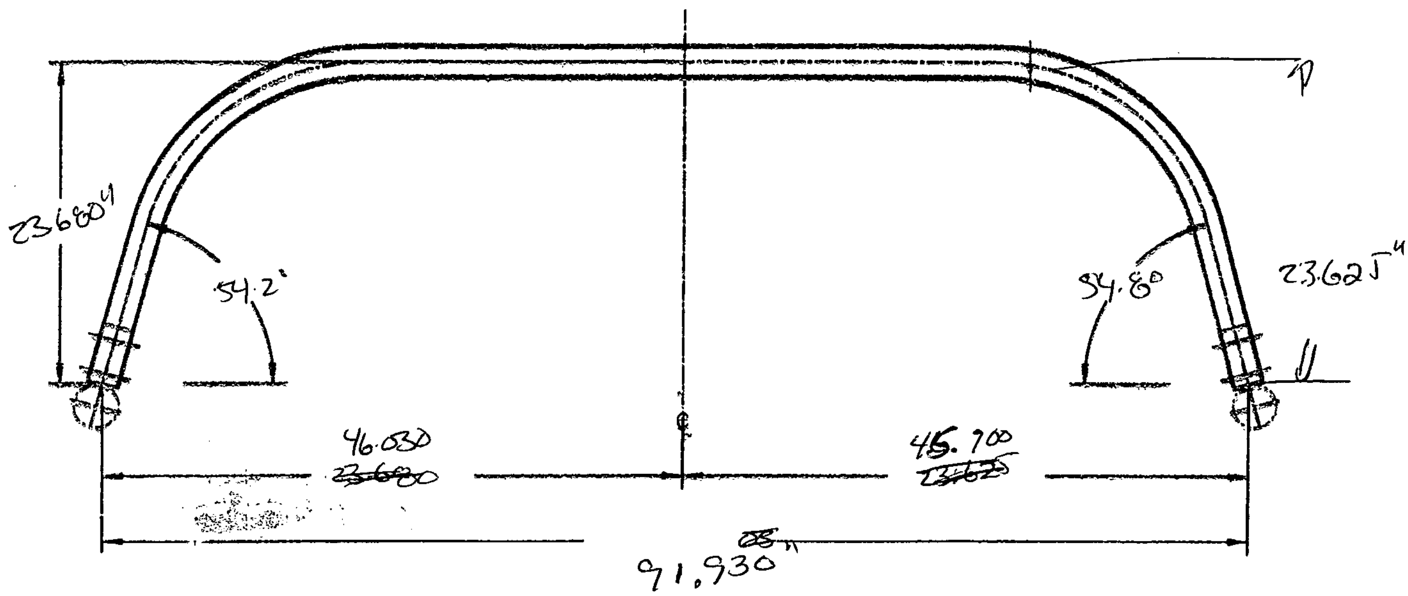
Resolution: ____________________ Disposition: ____________________ QA: N/C Closed: __________ Date: _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	55134
Description: Crosstube High Fwd (407)	Part Number:	D407-667-108
Inspection Dwg: D407-667-145 Rev: C		Page 1 of 1

Required Dimension	Min	Max
Height	23.41	23.67
1/2 Span	45.81	46.07
Angle	54	56
Total Span	91.63	92.13



Comments

QC15 Inspection	
Date	10/02/08

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.11.12	Dimensions updated per Dwg Rev C	KJ	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ **PAR #:** _______ **Fault Category:** ________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

Resolution: ____________________ **Disposition:** ____________________ **QA: N/C Closed:** _________ **Date:** _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Item	Qty -145	Part Number	Description
1	X	D407-667-145	CROSSTUBE ASSEMBLY (407 HIGH FWD)
2	1	D6010-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W 10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

SHOP COPY
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ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 55134
RM 10-1-06

GENERAL NOTES:

1) MATERIAL: MANUFACTURED FROM D6010-115
   FINISHED LENGTH = 113.20±0.020
2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
   PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
   PAINT OUTSIDE PER DART QSI 005 4.2
3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
4) UNITS: INCHES UNLESS OTHERWISE NOTED.
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
6) IDENTIFICATION: SCRIBE DART PART NUMBER "D407-667-145" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
7) WEIGHT: 17.8 lbs
8) PART IS SYMMETRIC ABOUT CENTERLINE.
9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
10) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED 05/11/12

REV.	DESCRIPTION	BY	DATE
C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. 7 ADD TOLERANCES (ZN C6-3, C4-3, B2-3); RELOCATED FLAG #6 (ZN A8-3) PER NOR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.05
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH SHTAA SKIDTUBES	PH	05.07.25
A	NEW ISSUE	OP	02.05.08

DESIGN		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED		DRAWING NO.	REV. C
MFG. APPR.		D407-667-145	SHEET 1 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE ASSY (407 HIGH FWD)	NTS
DATE	08.11.06		

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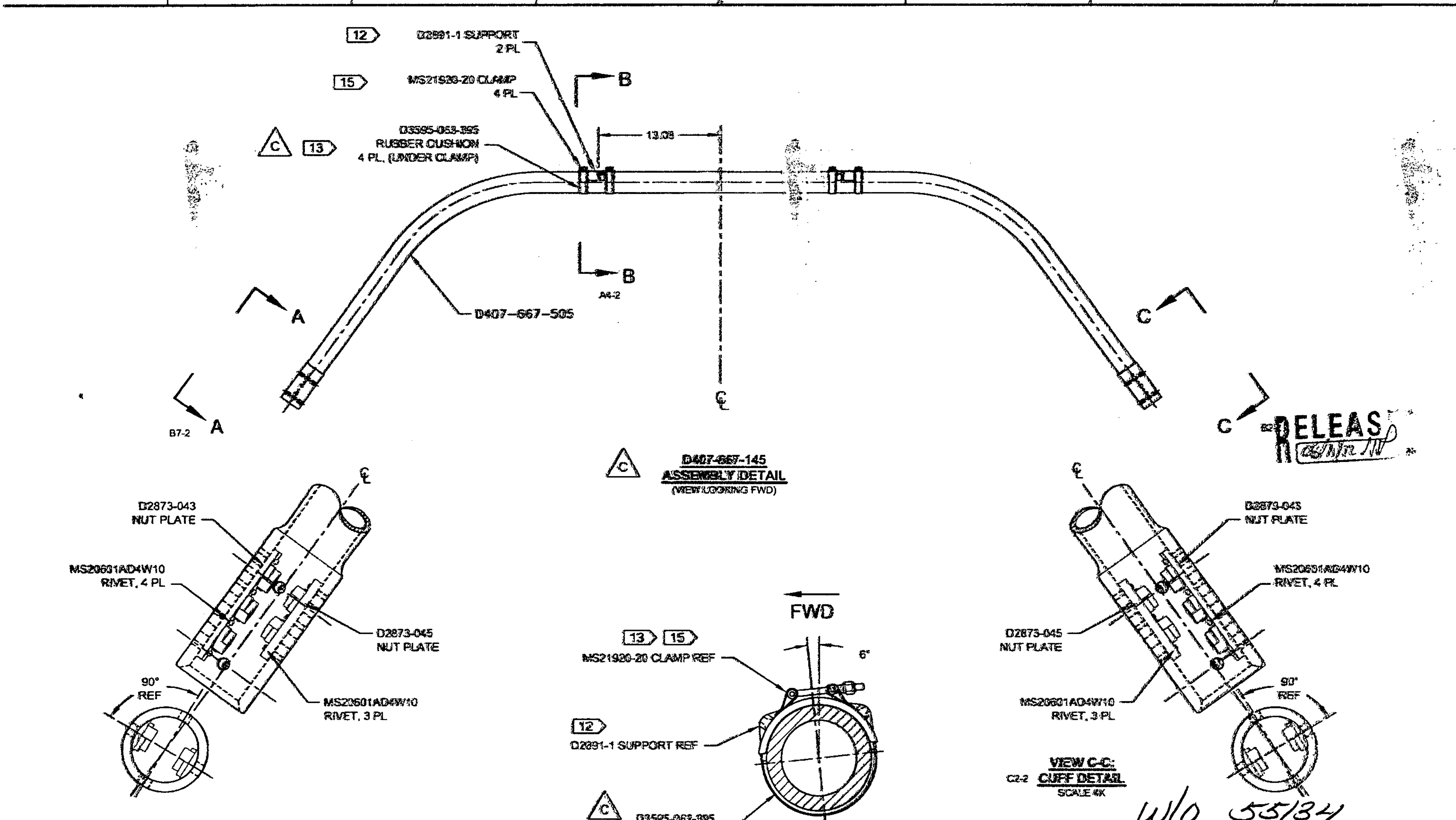
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN		DART AEROSPACE LTD
DRAWN	RF	CANADA
CHECKED		DRAWING NO. REV. C
MFG. APPR.		D407-667-145 SHEET 2 OF 4
APPROVED		TITLE SCALE
DE APPR.		CROSSTUBE ASS'Y (HIGH FWD) NTS
DATE 08.11.06		COPYRIGHT DART AEROSPACE LTD

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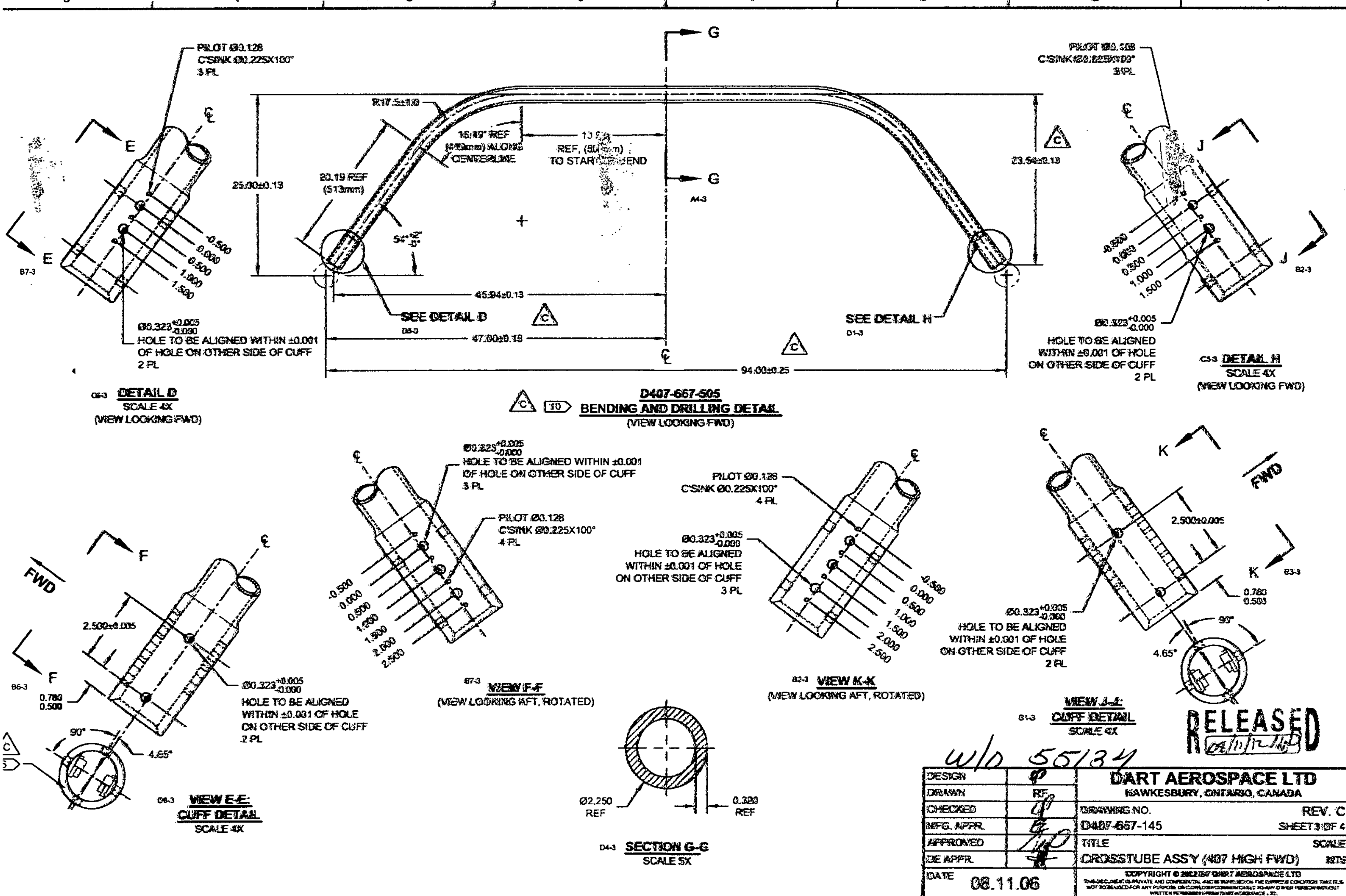
W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ PAR #: _______ Fault Category: __________________ NCR: Yes No DQA: _____ Date: _________

Resolution: ____________________ Disposition: ____________________ QA: N/C Closed: __________ Date: _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN		**DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	DRAWING NO. D407-667-145 — REV. C — SHEET 3 OF 4
CHECKED		
MFG. APPR.		
APPROVED		TITLE: CROSSTUBE ASS'Y (407 HIGH FWD) — SCALE: NTS
DE APPR.		
DATE	08.11.06	

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

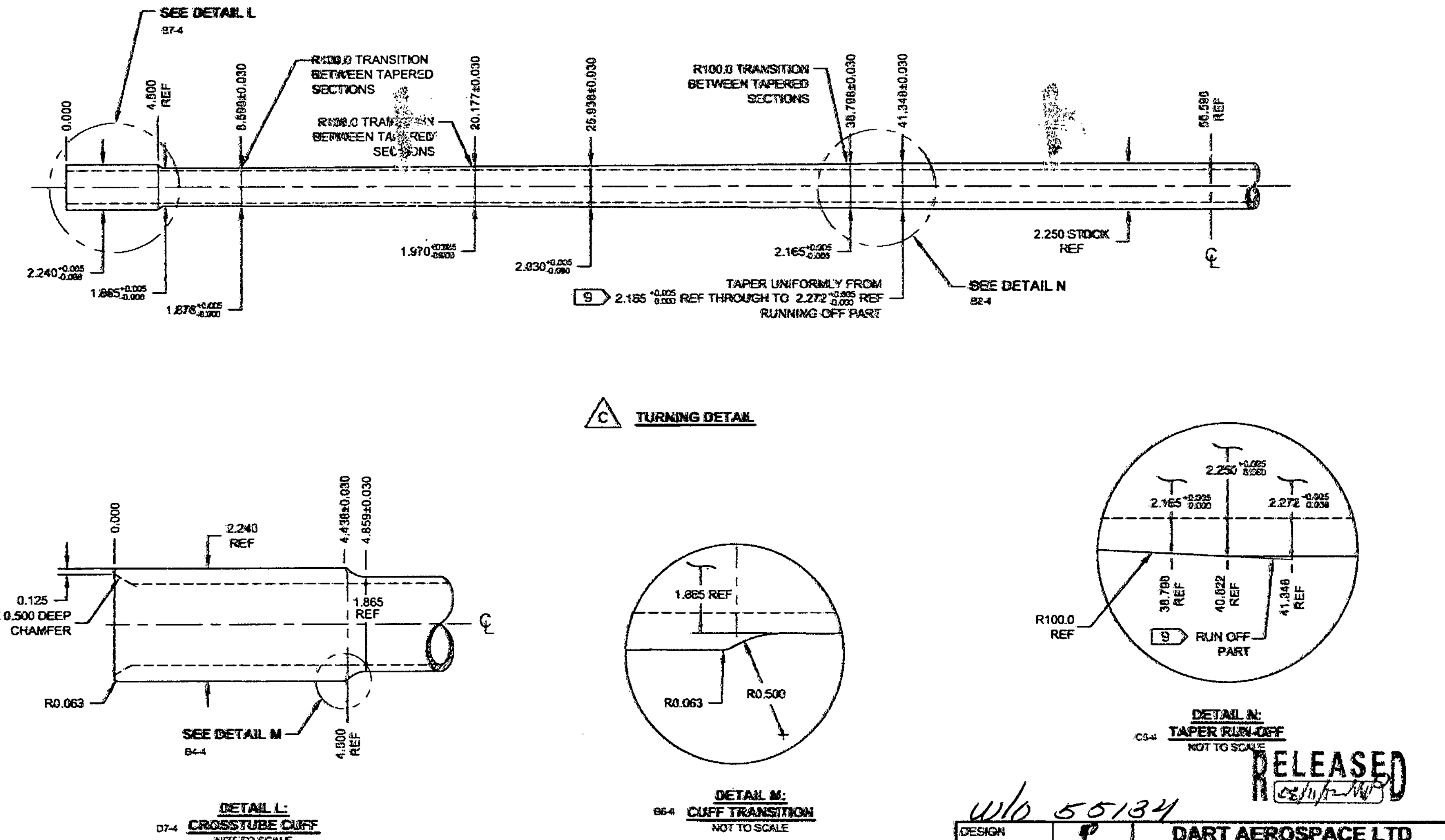
Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

Resolution: ____________________ **Disposition:** ____________________ **QA: N/C Closed:** __________ **Date:** _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE



W/O 55134

		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
DESIGN		DRAWING NO. REV. C
DRAWN	RF	D407-667-145 SHEET 4 OF 4
CHECKED		TITLE SCALE
MFG. APPR.		CROSSTUBE ASS'Y (407 HIGH FWD) NTS
APPROVED		
QE APPR.		
DATE	08.11.06	

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W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ PAR #: ______ Fault Category: ____________ NCR: Yes No DQA: _____ Date: ________

Resolution: ____________ Disposition: ____________ QA: N/C Closed: ________ Date: ________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

5.0 PARTS LIST

Item	Qty -011	Qty -013	Qty -015	Qty -101	Qty -201	Qty -103	Qty -203	Qty -105	Qty -205	Part Number	Description
	X									D206-667-011	SPACER BLOCK KIT
		X								D206-667-013	NUT PLATE KIT (-101/-103/-105/-203/-205)
			X							D206-667-015	NUT PLATE KIT (-201)
				X						D206-667-101	CROSSTUBE INSTALLATION, 206A/B HIGH FWD
					X					D206-667-201	CROSSTUBE INSTALLATION, 206A/B HIGH AFT
						X				D206-667-103	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH FWD
							X			D206-667-203	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH AFT
								X		D407-667-105	CROSSTUBE INSTALLATION, 407 HIGH FWD
									X	D407-667-205	CROSSTUBE INSTALLATION, 407 HIGH AFT
1				1						D206-667-141	CROSSTUBE ASSEMBLY, 206A/B HIGH FWD
2					1					D206-667-241	CROSSTUBE ASSEMBLY, 206A/B HIGH AFT
3						1				D206-667-143	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH FWD
4							1			D206-667-243	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH AFT
5								1		D407-667-145	CROSSTUBE ASSEMBLY, 407 HIGH FWD
6									1	D407-667-245	CROSSTUBE ASSEMBLY, 407 HIGH AFT
10				*2	*2	*2		*2		D2891-1	SUPPORT
11							*2			D2892-1	SUPPORT
12									*1	D2894-1	SUPPORT
13				*2	*2	*2		*2		D2856-400-694	ABRASION STRIP
14							*2		*2	D2856-400-773	ABRASION STRIP
15									*1	D2856-600-851	ABRASION STRIP
16				*4	*4	*4		*4		MS21920-20	CLAMP
17							*4		*4	MS21920-22	CLAMP
18									*2	MS21920-24	CLAMP
19				4	4	4		4		AN5-32A	BOLT
20							4		4	AN5-34A	BOLT
21				4	4	4	4	4	4	MS21042L5	NUT (OR MS21042-5)
22				8	8	8	8	8	8	AN960JD516	WASHER
23									*2	D3190-1	CHAFING SHIELD
30	8									AN4-6A	BOLT
31	8									AN4-7A	BOLT
32	16									AN960JD416	WASHER
33	2									D3193-041	SPACER BLOCK ASSEMBLY
40		2		*2		*2	*2	*2	*2	D2873-043	NUT PLATE
41		2		*2		*2	*2	*2	*2	D2873-045	NUT PLATE
42			2		2					D2872-043	NUT PLATE
43			2		2					D2872-045	NUT PLATE
44		10		10		10				AN5-7A	BOLT
45		10	10		10		10	10	10	AN5-10A	BOLT
46		4	4	4	10	4		4		AN5-30A	BOLT
47		4					4		4	AN5-32A	BOLT
48		18	18	10	12	10	10	10	10	AN960JD516	WASHER
49		4	4		6					MS21042L5	NUT (OR MS21042-5)

*REFERENCE ONLY. PARTS ARE INCLUDED IN D206-667-141/241/143/243, & D407-667-145/245 ASSEMBLIES ABOVE

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W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

Resolution: ____________________ **Disposition:** ____________________ **QA: N/C Closed:** __________ **Date:** _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
			Corrective Action Section B					
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries

REN

LIQUID PENETRANT TEST REPORT

P- 15318

PAGE 1 OF 1

Dart Aero Space	DATE	FEB 11-2010	TIME AM ☑ PM ☐
ɪN Linda Charentel	ACUREN JOB NO.	186-10-0651	
127 Aberdeen St.	PO/WO NO.	11364 —	
Hawkesbury On. K6A 1K7	WORK LOCATION	SAOP	
	ACCEPTANCE STD.	ASTM 1417	REV./DATE 2007

F.P.I. on Cross Tubes

ːXAMINED 6 Pcs

ːSCRIPTION	PROCEDURE NO. LT-002 REV./DATE	TECHNIQUE NO. LT-Tech 2 REV./DATE
—	MATERIAL Anodize Aluminum	THICKNESS —

Wet Fluorescent Liquid Penetrant Inspection carried out 100% External.

ːETAILS

☑ FLUORESCENT	☐ VISIBLE	☑ WATER WASH	☐ SOLVENT REMOVABLE	☐ POST EMULSIFIED
ːRAND Magnaflux		BLACK LIGHT S/N 16459	☑ OUTPUT > 1000 μ W/CM²	☐ AMBIENT < 2 fc
ːNT ZL67	MINIMUM DWELL TIME 45 10 MIN.	LIGHTING EQUIP. ☐ FLASHLIGHT	☐ TROUBLELIGHT	☐ OUTPUT>100 fc @ SURFACE
ːNT REMOVER H2O	MINIMUM DRY TIME >10 MIN.	OTHER Labino		
ːER SKD S2	MINIMUM DWELL TIME 10 MIN.	LIGHT METER S/N 1098866	CAL DUE DATE May 7-2010	
ːER TYPE ☑ NON AQUEOUS	☐ AQUEOUS ☐ DRY			

ːURFACE

ː CONDITION	☐ AS GROUND	☐ AS WELDED	☑ MACHINED	☐ SHOT BLASTED	☐ CLEAN BARE METAL
ː TEMPERATURE	☐ < - 4°C/ 20°F	☐ - 4°C/ 20°F TO 10°C/50°F		☑ 10°C/50°F TO 52°C/125°F	☐ > 52°C/125°F

ːTS- (☐ METRIC ☐ IMPERIAL)

Cross Tube W.O. 55759 ✓
Cross Tube W.O. 55760 ✓
Cross Tube W.O. 55779 ✓
Cross Tube W.O. 55780 ✓

Cross Tube W.O. 55781 ✓
Cross Tube W.O. 55782 ✓
Cross Tube W.O. 55734 ✓
Cross Tube W.O. 55735 ✓

All items examined on this report have been accepted to standard.

10.02.17

ːrvices
ːent of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood ːriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as ːions or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the ːr information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.
ːf Care
ːng the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or ːmade or intended by Acuren Group Inc.

ːTURES

REPRESENTATIVE	Ian Titley (PRINT)	(SIGNATURE)	DTR # E27362
ːCIAN (SIGNATURE):			REPORT REVIEWED BY:
ːPRINT):	Mike Johnston (1ST TECHNICIAN)	2ND TECHNICIAN	NAME / INITIALS
	CGSB LEVEL II SNT LEVEL II	CGSB LEVEL ___ SNT LEVEL ___	
	CGSB REG. NO 6606	CGSB REG. NO ___	

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PT Sept 2005